

AMENDMENTS TO CLAIMS

1. (currently amended) Method for controlling the temperature of at least one catalyst arranged in an exhaust gas cleaning system (12) of a lean-runnable multi-cylinder engine (10), wherein energy is introduced into the exhaust gas cleaning system (12) by a lambda split, and the introduction of energy is limited depending on:

(a) at least one of catalyst temperature, exhaust gas temperature, exhaust gas mass flow rate, change of the catalyst temperature with respect to time, change of the exhaust gas temperature with respect to time and change of the exhaust gas mass flow rate with respect to time; and

(b) at least one of rate of change of the catalyst temperature with respect to time, rate of change of the exhaust gas temperature with respect to time and rate of change of the exhaust gas mass flow rate with respect to time.

2. (original) Method according to claim 1, characterized in that the exhaust gas cleaning system (12) includes at least two exhaust gas paths (16, 16') disposed between the multi-cylinder engine (10) and the at least one catalyst, wherein a predefinable lambda value can be applied to each of the at least two exhaust gas paths.

3. (previously presented) Method according to claim 1, characterized in that the exhaust gas cleaning system (12) has at least one main catalyst (24) with at least two upstream pre-catalysts (18, 18'), wherein each pre-catalyst (18, 18') is arranged in a corresponding exhaust gas path (16, 16') to which a predefinable lambda value can be applied.

4. (previously presented) Method according to claim 1, characterized in that the introduction of energy is limited with increasing, measured or modeled temperature of the at least one catalyst.
5. (previously presented) Method according to claim 1, characterized in that the introduction of energy in at least one catalyst is limited for a high positive time-dependent temperature gradient.
6. (previously presented) Method according to claim 1, characterized in that the introduction of energy in at least one catalyst is limited when a positive time-dependent temperature gradient progressively increases.
7. (previously presented) Method according to claim 1, characterized in that the introduction of energy is limited when the exhaust gas mass flow decreases.
8. (previously presented) Method according to claim 1, characterized in that the amount of the introduced energy is defined by a split factor, which is determined when introduction of energy is requested, with the split factor defining the lambda values of the individual exhaust gas paths (16, 16') in the exhaust gas cleaning device (12).
9. (previously presented) Method according to claim 8, characterized in that when the lambda value before the at least one catalyst is controlled to a desired value, the lambda value in the lean exhaust gas path (16') is controlled to the lean lambda value, which results from the required split factor, depending on the lambda value measured before and after the at least one catalyst, in particular the main catalyst (24), whereas the rich exhaust gas path (16) is pre-controlled.
10. (previously presented) Method according to claim 8, characterized in that with a very lean setting on the lean exhaust gas path (16'), either an at least temporary

enrichment of the entire mixture is permitted, if the pre-control of the rich exhaust gas path (16) is not modified accordingly, or the rich exhaust gas path (16) is pre-controlled to lean lambda values, wherein at least one of the split factor is reduced and less energy is introduced.

11. (previously presented) Method according to claim 8, characterized in that with a lambda value > 1.3 in the lean exhaust gas path (16'), either at least a temporary enrichment of the entire mixture is permitted, if the pre-control of the rich exhaust gas path (16) is not modified accordingly, or the rich exhaust gas path (16) is pre-controlled to lean lambda values, wherein at least one of the split factor is reduced and less energy is introduced.

12. (previously presented) Method according to claim 8, characterized in that with a lambda value > 1.45 in the lean exhaust gas path (16'), either an at least temporary enrichment of the entire mixture is permitted, if the pre-control of the rich exhaust gas path (16) is not modified accordingly, or the rich exhaust gas path (16) is pre-controlled to lean lambda values, wherein at least one of the split factor is reduced and less energy is introduced.

13. (previously presented) Method according to claim 1, characterized in that the at least one catalyst is a NO_x -storage catalyst, whose temperature is controlled by introduction of energy into the exhaust gas cleaning system so that the NO_x -storage catalyst is desulfurized.

14. (previously presented) Method according to claim 1, characterized in that the introduction of energy is limited depending on the catalyst temperature, the time-

dependent change of the catalyst temperature and the rate of change of the catalyst temperature and of the exhaust gas mass flow.

15. (currently amended) Lean-runnable multicylinder engine (10) with an exhaust gas cleaning system (12) capable of lambda-splitting, with at least one catalyst arranged in the exhaust gas cleaning system (12), wherein the multicylinder engine (10) includes means for controlling the temperature of the at least one catalyst, wherein the means introduces energy into the exhaust gas cleaning system (12) by way of a lambda split and wherein the introduction of energy is limited depending on:

(a) at least one of catalyst temperature, exhaust gas temperature, exhaust gas mass flow rate, change of the catalyst temperature with respect to time, change of the exhaust gas temperature with respect to time and change of the exhaust gas mass flow rate with respect to time; and

(b) at least one of rate of change of the catalyst temperature with respect to time, rate of change of the exhaust gas temperature with respect to time and rate of change of the exhaust gas mass flow rate with respect to time.

16. (original) Multicylinder engine according to claim 15, characterized in that the exhaust gas cleaning system (12) includes at least two exhaust gas paths (16, 16') disposed between the multi-cylinder engine (10) and the at least one catalyst, wherein a predefinable lambda value can be applied to each of the at least two exhaust gas paths.

17. (previously presented) Multicylinder engine according to claim 15, characterized in that the exhaust gas cleaning system (12) has at least one main catalyst (24) with at least two upstream pre-catalysts (18, 18'), wherein each pre-catalyst (18, 18') is

arranged in a corresponding exhaust gas path (16, 16'), to which a predefinable lambda value can be applied.

18. (previously presented) Multicylinder engine according to claim 15, characterized in that at least one of the at least one catalyst and the main catalyst (24) is a NO_x-storage catalyst.

19. (currently amended) Multicylinder engine according to claim 17 45, characterized in that the precious metal content of the at least two pre-catalysts (18, 18') is ≤ 3.59 g/dm³.

20. (previously presented) Multicylinder engine according to claim 15, characterized in that the means comprise a control device, in which models and algorithms for a coordinated control of exhaust-gas-related and performance-related measures are stored in digitized form.

21. (currently amended) Multicylinder engine according to claim 15, characterized in that the multicylinder engine (10) is a gasoline engine or a diesel engine.

22. (previously presented) Method according to claim 4, wherein the at least one catalyst is the main catalyst.

23. (previously presented) Method according to claim 5, wherein the at least one catalyst is the main catalyst.

24. (previously presented) Method according to claim 6, wherein the at least one catalyst is the main catalyst.

25. (previously presented) Method according to claim 9, wherein the at least one catalyst is the main catalyst.

26. (previously presented) Method according to claim 13, wherein the at least one catalyst is the main catalyst.

27. (previously presented) Multicylinder engine according to claim 19, wherein the precious metal content of the at least two pre-catalysts (18, 18') is $\leq 2.87 \text{ g/dm}^3$.

28. (currently amended) Multicylinder engine according to claim 21, wherein the gasoline engine is ~~either a direct-injection gasoline engine or a diesel engine.~~